

Title Aeration simulation of stored paddy by integrating desiccant tray unit into grain ventilation system

Author Bui Ngoc Hung, Atipoang Nuntaphan and Tanongkiat Kiatsiriroat

Citation Proceedings of the 9th Conference of Thai Society of Agricultural Engineering 2008, The Imperial Mae Ping Hotel, Chiang Mai, Thailand, 31 January – 1 February 2008. 203 p.

Keywords simulation; aeration; silica gel; paddy; silo

Abstract

This research work suggested the method of reducing the grain bulk temperature and avoiding the moisture transfer in a storage bin during stored grain aeration by using desiccant tray unit. The air humidity was adsorbed by desiccant unit and then reduced subsequently before entering the grain silo. The simulation program was developed based on the AERO program and the model of desiccant tray that assist users in prediction of the grain temperature and moisture content.

According to the ambient air condition, the number of tray will be suitably calculated for storage conditions in humid tropical regions.

The simulated result showed that 2 desiccant trays (3.5 kg of silica gel per tray) were appropriate to control the air temperature and the humidity of 18 ton of grain stored in a cylindrical silo be lower than 28 °C and 80% RH.